ABSTRACT

A method of charging a battery is provided that alters the amount of energy stored within the battery based upon a temperature profile across time. Battery materials and components, like liquid electrolyte or electrodes for instance, can be damaged when a rechargeable cell is exposed to elevated temperatures for extended amounts of time, thereby reducing the overall amount of energy that may be stored within the cell. This method monitors stored energy capacity and temperature. When a fully-charged cell is held at a temperature that exceeds a predetermined temperature threshold for an extended amount of time, the method discharges the cell, thereby reducing the amount of energy stored within the cell. For example, when a single, lithium-ion cell is maintained at 4.2 V for over 10 hours, the method will discharge the cell by roughly 1% or 50mV. The discharge may be either automatic, or at the prompt of a user.